REMARKS

Claims 2-5, 19, 21-25 and new Claims 26 and 27 are active in the case. Claims 6-18 and 20 stand withdrawn from consideration.

Applicant's representative wishes to thank Examiner Crepeau for the helpful and courteous interview of July 31, 2003. As a result of the discussion it is believed that the issues in the case have been clarified and that the prosecution of the application has been materially advanced.

Claim Amendments

Claims 19 and 21 have been amended to recite that the negative electrode release electron as the energy storage device or battery is discharged as is supported by the known fact that negative electrodes function in this manner. Further, new Claims 26 and 27 have been amended, the claims based on the combination of each of Claims 19 and 21 with the subject matter of Claim 25. Entry of the amendments and new claims is respectfully requested.

Discussion

As to the matter of previously submitted Claim 25, applicant's representative reiterates that the energy storage device or battery of the invention operate within the potential difference regime of 0 V to 1.5 V relative to the lithium electrode. On the other hand, as can be noted in Example 1 (col 12) of the Kawakami et al patent, the cell of this example is operated at the cutoff voltages during charging and discharging of 4.5 V and 2.5 V, respectively. These potential values are significant because when the active material of the positive electrode that is subjected

to such high voltages is employed as the active electrode material subjected to low electric potential, the potential of the negative electrode becomes higher than the potential of the positive electrode. Under these conditions irreversible destruction of the structure of the active material occurs and the cell or battery ceases to function as a secondary cell or battery.

Applicants clarify that the electrode of the present claims comprising A_aS is always the negative electrode. That is, the negative electrode is always the negative electrode during charging and discharging cycles. However, the negative electrode comprising A_aS functions as a cathode during charging because the electrode accepts electrons. That is, the electrode material is reduced. During the discharging normal operation of the cell, the negative electrode releases electrons (donates) and is oxidized in the process. This is consistent with the disclosure of the Holleck patent in column 1 where patentee states that in a hydrogen-nickel secondary battery, the nickel-containing electrode is the positive electrode (cathode) which, during discharge of the battery, accepts electrons, while the hydrogen-containing negative electrode (anode) releases or donates electrons. When the secondary battery is recharged, while the nickel-containing electrode (cathode) gives-up electrons and the anode receives electrons, nevertheless, the electrodes still maintain their identity and function of being the cathode and anode respectively of the cell. The electrodes never lose their identities as cathode and anode and for this reason applicants do not believe it is necessary to identify the negative electrode as an anode during discharging of the energy storage device or battery.

As with all secondary energy storage devices and batteries, during charging of the device or battery of the present invention the potential of the positive electrode (cathode) becomes greater while the potential of the negative electrode becomes lower. Accordingly, during the

charging operation, the potential difference between the electrodes becomes greater. Conversely, during discharge of the cell the potential of the cathode becomes lower and the potential of the negative electrode (anode) becomes greater, and thus the potential difference between the two electrodes decreases. However, the potential of the positive electrode (cathode) is always greater then the potential of the anode.

Applicant notes with respect to the Kawakami et al patent that when the active material of the positive electrode which includes the sulfides mentioned is subjected to high voltages

Applicants believe that the subject matter of the declaration (37 CFR 1.312) filed July 2, 2003 has a significant bearing on the issue of patentability. The declaration provides a comparative cell similar to that of Example 2 of the application except that the active material of the negative electrode was MnS. The result is that the cell produced was completely inoperable as a battery. Thus, all of the sulfide materials shown by Kawakami et al do not function as negative electrode materials, and therefore, positive and negative electrode materials are not always interchangeable. Accordingly, applicant submits that one of skill in the art considering the Kawakami et al patent would not have been led to use the specific sulfide materials disclosed as positive functioning electrode materials in the reference as the active material of a negative electrode of a secondary battery as in the present invention. It is also believed that one of skill could not have predicted that the present device or battery as now claimed would exhibit a high voltage, high energy density and excellent charging and discharging characteristics as well as long cycle life and high reliability.

It is now believed that the application is in proper condition for consideration on its merits.

Respectfully submitted,

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